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LYOPHILISATION OF VIRUS VACCINES IN THE TROPICS

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LYOPHILISATION OF VIRUS VACCINES IN THE TROPICS

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The stabilisation of virus vaccines is indispensable for their use under subtropical conditions. Stabilisation can be achieved by the process of cryodessication or lyophilisation.

However, a tropical climate, characterised by high temperatures and frequently by high relative humidity, creates unfavourable conditions for the application of this method.

The refrigerating installations, used for producing the cold necessary for the rapid freezing of the products and for the elimination of water vapour released during desiccation, operate with a poor yield owing to the high temperature of the fluids used for refrigeration (air or water).

Furthermore, several of these apparatuses do not possess any devices for cooling the product in the course of desiccation to a temperature below that of the ambient room temperature, and this causes a heavy loss of activity of the resulting product.

These disadvantages may be eliminated by two possible solutions. In the event of acquiring new equipment and disposing of sufficient financial means, specially adapted equipment may be selected, viz. a refrigerating installation that is independent of the sublimator, feeding the condensers of the refrigerator with a cooled fluid (air or water), and such arrangement of the sublimator which would allow maintaining at a controlled given temperature the products during desiccation.

In the event of plant already in service, it is advisable to place it in a refrigerated room, the temperature of which will be calculated according to the maximal temperature tolerated by the products to be desiccated.

Under the above conditions, it is possible to considerably reduce the loss in activity resulting from the process, and to obtain products of markedly improved activity.

Lyophilisation alone does not ensure, however, complete stabilisation, and in the case of a number of virus vaccines it is essential to store and preserve them in refrigerated condition even in the desiccated state.

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